

PROCEDURE COMMENTS

Please place any helpful information pertaining to this procedure below:

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CALLAWAY PLANT
ADMINISTRATION PROCEDURE
APA-ZZ-00741
CONTROL OF COMBUSTIBLE MATERIALS

RESPONSIBLE DEPARTMENT Engineering

PROCEDURE OWNER Lee Eitel

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APPROVED BY _____

DATE ISSUED _____

This procedure contains the following:

Pages	<u>1</u>	through	<u>16</u>
Attachments	<u>1</u>	through	<u>3</u>
Tables	_____	through	_____
Figures	_____	through	_____
Appendices	<u>1</u>	through	<u>1</u>
Checkoff Lists	_____	through	_____

This procedure has _____ checkoff list(s) maintained in the mainframe computer.

Conversion of commitments to TRS reference/hidden text completed by Revision Number:

Non-T/S Commitments 15

DEFICIENCY LIST

Section	Deficiency Description	Constraints
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CONTROL OF COMBUSTIBLE MATERIALS

1 PURPOSE AND SCOPE

1.1 PURPOSE

Establishes requirements for the storage and handling of combustible materials. This includes flammable liquids, combustible liquids, flammable gases and Class A materials such as wood, paper, plastic, cable insulation, resin, filters, charcoal, etc. **(FSAR APX 9.5B)**

1.2 SCOPE

1.2.1 Transient combustible materials in plant buildings are within the scope of this procedure.

1.2.2 Permanent storage of additional fixed combustibles is within the scope of this procedure.

1.2.3 Existing fixed combustibles contained in plant equipment such as diesel generator fuel oil day tanks, cable insulation, turbine generator lube oil and hydraulic control fluid systems, etc., are outside the scope of this procedure. These items are addressed in original design.

1.2.4 Control of compressed gas bottles is addressed in the **SAFE WORK PRACTICES MANUAL**. However this procedure does address control of flammable gasses. **(CARS 200104138)**

2 DEFINITIONS

- 2.1 Approved - Tested and accepted for a specific purpose or application by a nationally recognized testing laboratory, such as Underwriters Laboratories (UL) or Factory Mutual (FM), or accepted by the Fire Protection Engineer(s).
- 2.2 Class B Materials - Flammable or combustible liquids, greases, aerosols, and flammable gases.
- 2.3 Container - Any vessel of 60 gallons or less capacity used for transporting or storing liquids.
- 2.4 Combustible Liquid – A liquid with an NFPA Hazmat Fire Hazard Rating of 1 or 2. A liquid that gives off ignitable vapors in air when the liquid temperature is at some point higher than 100 deg. F. Some examples of combustible liquids are diesel fuel, Stoddard solvent and lubricating oils
- 2.5 Fire Area - An area of a building separated from the remainder of the building by construction having a fire resistance of at least 1 hour and having all communicating openings properly protected by an assembly having a fire resistance rating of at least 1 hr.
- 2.6 Fixed Combustibles - Combustible materials that are fixed in place and installed as part of the plant on a permanent basis or stored to support plant operations. The average inventory of protective clothing (PC's) in a dress-out area or the average inventory of nylon chokers in an approved tool area constitute examples of fixed combustibles as used in this procedure.
- 2.7 Flammable Liquids – A liquid which has a NFPA HAZMAT Fire Hazard Rating of 3 or 4. A liquid that gives off ignitable vapors in air when the liquid temperature is at some point less than 100 deg. F. Some examples of flammable liquids are acetone, gasoline, toluol, and ethyl alcohol in water at concentrations of 10% or higher.
- 2.8 Flammable Gas - Any gas that will burn in the normal concentrations of oxygen in air.
- 2.9 In Use – A material which is actively being used. A material which is left unattended is not considered "in use".

- 2.10 Original Container - A container in which a material is originally shipped in by the manufacturer.
- 2.11 Portable Tank - Any closed vessel having a liquid capacity over 60 gallons and not intended for fixed installation.
- 2.12 Safety Can - An approved container, of not more than five gallons capacity, having a spring closing lid and spout cover and so designed that it will safely relieve internal pressure when subjected to fire exposure.
- 2.13 Transient Combustibles - Combustible materials that are not fixed in place and installed as part of the plant, but are brought into an area on a temporary basis to support a particular work activity and are removed from the area upon completion of the work activity.
- 2.14 Combustible Material – Any material which, in the form and under the conditions used, will ignite and burn.

3 TRANSIENT COMBUSTIBLES IN SAFETY RELATED AREAS

3.1 APPLICABLE AREAS

- 3.1.1 This section applies to buildings housing installed safety related equipment or cabling and areas adjacent to safety related areas: **(COMN 547)**
- 3.1.2 Safety Related Buildings:
- a) Auxiliary Building
 - b) Fuel Building
 - c) Control Building
 - d) Diesel Generator Building
 - e) ESW Pumphouses
 - f) UHS Cooling Tower
 - g) Reactor Building
 - h) Refueling Water Storage Tank (RWST)
- 3.1.3 Areas Adjacent to Safety Related Buildings:
- a) South 50 feet of Turbine Building
 - b) Communications Corridor

- c) Auxiliary Boiler Room
- d) North 50 feet of Rad Waste Tunnel
- e) Within 50 feet of outside wall of Safety Related Buildings
(see step 3.2.1.2 for further guidance)

3.2 COMBUSTIBLE LIMITS

3.2.1 The use of specific transient combustibles in buildings housing safety related equipment and areas adjacent to safety related areas SHALL be controlled as follows: **(COMN 4081)**

3.2.1.1 The Fire Protection Engineer or his designee (i.e. Fire Protection System Engineer, Fire Marshal) SHALL be consulted before exceeding the general transient combustible limits listed below for a 500 square foot area (12.6 ft radius). This should be documented on a CA- #712 form in accordance with Section 5 of this procedure. **(FSAR APX 9.5E) (10 CFR 50 , APX R)**

- a) Greater than 100 pounds of Class A materials (such as paper, wood, rags, plastic and cable insulation) or;
- b) Two gallons of liquid with a Fire Hazard Rating of 3 or 4 on the NFPA Hazmat diamond or;
- c) Five gallons of liquid with a Fire Hazard Rating of 1 or 2 on the NFPA Hazmat diamond or;
- d) 500 cubic feet of flammable gas (i.e. 2 sets of typical sized acetylene/oxygen welding carts or propylene (HPG) carts. **(CARS 200104138)**

3.2.1.2 For outside yard areas within 50 feet of the outside wall of a safety related building, the Fire Protection Engineer or his designee (i.e. Fire Protection System Engineer, Fire Marshal) need only be consulted before exceeding the general transient combustible limits listed below. This should be documented on a CA- #712 form in accordance with Section 5 of this procedure. **(RFR 022387A, CARS 200203554)**

- a) Greater than 2000 pounds of Class A materials (such as paper, wood, rags, plastic and cable insulation) or;
- b) 100 gallons of liquid with a Fire Hazard Rating of 3 or 4 on the NFPA Hazmat diamond or;
- c) 100 gallons of liquid with a Fire Hazard Rating of 1 or 2 on the NFPA Hazmat diamond or;
- d) 2000 cubic feet of flammable gas (i.e. 8 sets of typical sized acetylene/oxygen welding carts or propylene (HPG) carts.

3.2.1.3 The limits of Step 3.2.1.2 also apply to the interior of the Unit 2 ESW Pumphouse which is used for offices and work areas.
(CARS 200203554)

3.3 FLAMMABLE AND COMBUSTIBLE LIQUIDS

3.3.1 When not "in use", flammable liquids (Fire rating of 3 or 4 on the HAZMAT diamond) should be stored in a Flammable Liquids Cabinet.

3.3.2 Combustible liquids (Fire rating of 1 or 2 on the HAZMAT diamond) should be stored in either a Flammable Liquids Cabinet (labeled "FLC-####") or a Chemical Storage Area (area labeled as "CHC-####").

3.3.2.1 Chemical Storage Areas are listed in Appendix C of **PROC APA-ZZ-00831**.

3.3.2.2 Items which are exempted from storage requirements are listed in **PROC APA-ZZ-00831**, Appendix D.

3.3.2.3 Items which are exempted from the Chemical Control Program as listed in **PROC APA-ZZ-00831**, Appendix A, are not required to be stored in Flammable Liquids Cabinets or Chemical Storage Areas.

3.3.2.4 If a valid reason exists such that the above guidelines in Section 3.3 can not be complied with, then approval should be obtained on a Transient Combustible Permit (CA 712). **(CARS 200203690)**

3.3.3 Refer to section 7.0 for guidelines on Flammable Liquids Cabinets.

- 3.3.4 Flammable liquids SHALL meet **one** of the following container requirements: **(COMN 43242)**
- a) Approved Safety can or other portable container, painted red with clearly visible identification. (The HAZMAT label will be sufficient) OR
 - b) The flammable liquid is in the original shipping container.
- 3.3.4.1 “Original containers” for flammable liquids (Fire Rating of 3 or 4 on the NFPA Hazmat diamond) should not exceed a capacity of 1 gallon.
- 3.3.5 The limit of diluted combustible liquids is the quantity of combustible liquid in the solution. (i.e. Ethylene glycol used in plant heating systems is generally a 20% concentration. Therefore 25 gallons of ethylene glycol is allowed before approval on a Transient Combustible Permit is required.) **(CARS 200106562)**
- 3.4 COMBUSTIBLE MATERIALS
- 3.4.1 Combustible materials are ONLY to be used when suitable non-combustible materials are NOT available. In particular, halogenated plastics such as polyvinyl chloride (PVC) and neoprene should be used only when substitute non-combustible materials are not available. **(COMN 552)**
- 3.4.2 All wood used during maintenance, modification, or refueling operations (such as lay-down blocks or scaffolding) SHALL be treated with a flame retardant. **(COMN 42)**
- 3.4.2.1 Although the flame retardant treating of wood makes it unlikely that the wood will ignite, the flame retardant wood can still burn under certain conditions and is therefore considered a combustible material. **(CARS 200207892)**
- 3.4.2.2 Flame retardant wood that is going to be used in the plant should not be placed in long term storage that exposes the wood to the elements of weather. This requirement is to prevent degradation of the fire retardant treatment. **(CARS 200204075)**

- 3.4.2.3 The treated wood requirement does not apply to tools or items such as pallets and cable reels. However, items such as pallets and cable reels SHALL be removed from the safety related building after job is complete. **(COMN 43214)**
- 3.4.3 Equipment or supplies shipped in untreated combustible packing containers may be unpacked in buildings housing safety related equipment if required for valid operation reasons.
- 3.4.3.1 However, all combustible packing materials SHALL be removed from the building, as soon as practical, following the unpacking. **(COMN 43)**
- 3.4.3.1.1 Such transient combustible packing material, unless stored in metal containers with tight-fitting covers, SHALL not be left unattended during lunch breaks, shift changes, or other similar periods. **(COMN 44)**
- 3.4.3.2 Loose combustible packing material, such as wood or paper excelsior, or polyethylene sheeting, SHALL also be placed in metal containers with tight fitting, self-closing metal covers. **(COMN 518)**
- 3.4.4 Employees SHALL minimize waste, debris, scrap, and oil spills resulting from a work activity in the safety-related area while work is in progress and remove the same upon completion of the activity or at the end of each work shift. **(COMN 516)**
- 3.4.4.1 Upon discovery of oil soaked insulation, notify the appropriate system engineer or Shift Supervisor. **(SOS 98-0129)**
- 3.4.4.2 Upon spill of combustible liquid on insulation, notify the appropriate system engineer or Shift Supervisor. **(SOS 98-0129)**
- 3.4.4.3 The responsible system engineer or Shift Supervisor MUST assess the potential for fire. **(SOS 98-0129)**
- 3.4.4.3.1 The responsible system engineer or Shift Supervisor MUST record his recommendation on associated work document, if applicable. **(SOS 98-0129)**
- 3.4.5 The quantities of resins staged in Rooms 1301, 1307 and 1405 SHALL be controlled and limited to quantities required for immediate use in recharging the demineralizers. **(COMN 4078)**

- 3.4.6 The spent cartridges in the CVCS filters in Room 1302 SHALL be transferred to a 55 gallon drum, sealed and, when full, transported to the Radwaste Building for storage/processing. **(COMN 4076)**
- 3.4.6.1 Only new cartridges in quantities required for immediate use SHALL be brought into this area and the containers hauled away as soon as they are emptied. **(COMN 4076)**
- 3.4.7 Trash cans throughout the plant should be made of a fire resistant material and have a self closing lid or a flame arrestor lid. **(SOS 98-0888)**
- 3.4.7.1 The trash cans should be Factory Mutual (FM) approved.
- 3.4.8 Storage Areas SHALL be cleaned as required to avoid the accumulation of trash, discarded packaging materials and other detrimental material. **(COMN 2342)**
- 3.4.9 Flammable solids (NFPA Fire Rating of 3 or 4) should be stored in Flammable Liquids Cabinets when not in use. **(CARS 200106861 .)**
- 3.5 RCA HP RELEASE AREAS
- 3.5.1 Radiologically Controlled Area (RCA) HP Release Areas for large items have been established within areas on 2000' elevation of the Auxiliary Building: **(RFR 019062A)**
- a) North Corridor (Room 1301)
 - b) South End of West Corridor(Room 1301)
 - c) Room 1307
- 3.5.2 Transient combustibles which are awaiting radiological survey and release from the RCA by HP may be left unattended in the RCA HP Release Areas without a Transient Combustible Permit (CA- # 712) in accordance with posted signs. **(RFR 019062A)**
- 3.6 NO COMBUSTIBLE ZONES
- 3.6.1 "No Combustible Zones" are marked on the floor with painted red lines.

- 3.6.2 These “No Combustible Zones” are established to satisfy the 20 feet horizontal distance requirement for separation of redundant trains of safe shutdown equipment and are to contain no intervening combustibles. **(RFR 006400A, RFR 016916A)**
- 3.6.3 Combustible materials **MUST NOT** be left unattended in “No Combustible Zones”.
- 3.6.3.1 If it becomes necessary to leave any quantity of combustible materials unattended in a “No Combustible Zone”, the Fire Protection Engineer should be contacted for approval.
- 3.6.3.2 The Fire Protection Engineer approval will be documented on a Transient Combustible Permit (CA-#712 Form) in accordance with Section 5 of this procedure or a Fire Protection Impairment Permit (FPIP governed by **PROC APA-ZZ-00701** , Control of Fire Protection Impairments) as determined necessary by the Fire Protection Engineer.
- 3.7 **TEMPORARY ELECTRICAL CABLES (RFR 019733A)**
- 3.7.1 Temporary electrical cables should satisfy the separation criteria of **DRAW E-2R8900** , Section 3.36.4.
- 3.7.1.1 If the cable will be left unattended and the minimum separation requirements cannot be met, the cable should be evaluated on a Transient Combustible Permit (CA 712).
- 3.7.1.2 A Fire Protection Impairment Permit (FPIP) should be generated in accordance with **PROC APA-ZZ-00701** .
- 3.7.1.2.1 The Fire Protection Engineer will determine the compensatory requirements which are to be established (i.e. hourly firewatches) and will document on the FPIP.

4 **TRANSIENT COMBUSTIBLES IN NON-SAFETY AREAS**

- 4.1 This section establishes the requirements for the handling of transient combustibles in non-safety related areas of the plant.
- 4.1.1 This section is not applicable to Stores 1 and 2. The requirements for Stores 1 and 2 are contained in Attachment 1.

- 4.2 FLAMMABLE and COMBUSTIBLE LIQUIDS
- 4.2.1 When not "in use", flammable liquids (HAZMAT rating of 3 or 4) should be stored in a Flammable Liquids Cabinet or approved storage area (i.e. OMF Paint Storage Room). Refer to section 7.0 for guidelines on Flammable Liquids Cabinets. **(SOS 99-0286)**
- 4.2.2 When not "in use", combustible liquids (HAZMAT rating of 1 or 2) should be stored in either a Flammable Liquids Cabinet or an approved Chemical Storage Location.
- 4.2.2.1 Approved Chemical Storage Locations are listed in Appendix C of **PROC APA-ZZ-00831**.
- 4.2.2.2 Items which are exempted from the Chemical Control Program as listed in **PROC APA-ZZ-00831** are not required to be stored in Flammable Liquids Cabinets or Chemical Storage Areas.
- 4.2.3 Flammable and combustible liquids should be stored in their original container or in approved closed containers/portable tanks when not actually in use. See Attachment 1 for guidelines.
- 4.2.4 "Original containers" for flammable liquids should not exceed a capacity of 1 gallon.
- 4.2.5 Flammable liquids with a Fire rating of 3 or 4 on NFPA Hazmat diamond, SHALL meet **one** of the following container requirements. **(COMN 43242)**
- a) Approved Safety can or other portable container, painted red with clearly visible identification. The HAZMAT label will be sufficient. OR
 - b) The flammable liquid is in the original shipping container.
- 4.2.6 Attachment 1 Section titled "Transfer of Flammable and Combustible Liquids", should be used as a guideline for the transfer of liquids from one container to another.
- 4.3 Use of flammable and compressed gas cylinders is controlled in accordance with the **SAFE WORK PRACTICES MANUAL (SWPM)**

5 TRANSIENT COMBUSTIBLE PERMIT

- 5.1 This section describes the requirements for the CA-#712, Transient Combustible Permit.
- 5.1.1 The planner should include an approved CA-#712 in the work package, if a known amount of transient combustible material is to be used in safety related buildings, which exceed limits in Section 3.
- 5.1.2 The responsible supervisor/foreman SHALL review their work activities to identify transient fire loads. **(COMN 514)**
- 5.1.3 Personnel using combustible materials which exceed limits specified in Section 3 of this procedure, should initiate a CA-#712 and forward to the Fire Protection Engineer.
- 5.1.4 The CA-#712 should be approved by the Fire Protection Engineer or his designee (Fire Protection System Engineer, Fire Marshal).
- 5.1.5 The Fire Protection Engineer will review the CA-#712 for approval or will review a copy of the CA-#712 if approved by his designee.
- 5.1.5.1 The Fire Protection Engineer will review the Combustible Loading Information Program (CLIP) to determine effect on the total combustible loading in the affected areas.
- 5.1.6 Restrictions or required conditions will be specified on the CA-#712, as required, for approval to bring the transient combustible material in the requested area.
- 5.1.6.1 The Fire Protection Engineer will consider fire protection capabilities of the area when evaluating the combustibles. **(RFR 020817A)**
- 5.1.7 The Fire Protection Engineer will track active Transient Combustible Permits and will assure removal of combustible materials after permit has expired.
- 5.1.8 The Transient Combustible Permit (CA #712) should be posted in the area the combustible materials are located. **(SOS 00-0795)**

6 ADDITION OF PERMANENT COMBUSTIBLES

6.1 SAFETY RELATED AREAS AND ADJACENT AREAS

6.1.1 A Request for Resolution (RFR) should be initiated in accordance with **PROC APA-ZZ-00604**, Request for Resolution, to receive authorization to permanently store/install ANY combustible material in safety related areas or “areas adjacent to safety related areas”. (**COMN 512 , COMN 552 , COMN 2343**)

6.1.1.1 Authorization should address the quantity, type and location of combustibles. The location should meet the FSAR fire protection requirements and other fire protection considerations.

6.1.2 All flammable gases used in the plant (other than small quantities of specialty gases for laboratory analysis or localized testings) SHALL be stored outside safety related areas. (**COMN 4013**)

6.2 STAIRWELLS

6.2.1 Combustible material **MUST NOT** be stored in stairwells. (**SOS 96-0219**)

6.2.1.1 If for some reason, it is unavoidable to keep combustible materials out of a stairwell due to required work activities, approval **MUST** be obtained on a CA-#712 form. (**SOS 98-1131**)

6.2.2 Personnel egress through stairwells **MUST** not be blocked due to storage of equipment or materials. (**SOS 96-0219**)

6.3 NON-SAFETY RELATED AREAS

6.3.1 An RFR should be initiated to receive authorization to permanently store or install combustible material which exceed the following limits:

- a) 500 pounds of Class A materials
- b) 10 gallons of liquids which have a Fire Rating of 1 or greater on the NFPA Hazmat diamond.

<p><u>NOTE:</u> This does not apply to Stores buildings.</p>
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7 FLAMMABLE LIQUIDS STORAGE CABINET GUIDELINES

7.1 Flammable Liquids Cabinets will need Fire Protection Engineer approval for installation.

7.1.1 Approved Flammable Liquids Cabinets will be labeled "FLC-###". The label will be white letters with a red background.

7.2 Portable Flammable Liquids Cabinets may be used for transient flammable and combustible liquids.

7.2.1 Flammable Liquids Cabinets should be UL listed, Factory Mutual (FM) approved, or those constructed in accordance with NFPA-30.

7.2.2 Fire Protection Engineer approval will be documented on an RFR, modification, or Transient Combustible Permit (CA # 712).

7.2.3 The Fire Protection Engineer will maintain a list of the approved permanent locations of Flammable Liquids Cabinets in Appendix 1 of this procedure. **(SOS 99-0286)**

7.3 It is acceptable to store flammable liquids, combustible liquids, and aerosols in the same Flammable Liquids Cabinets unless posted otherwise. **(SOS 99-0286)**

- 7.4 The following are limits for “approved” Flammable Liquids Cabinets:
- a) Each cabinet should contain no more than 60 gallons of liquids with a Fire Hazard rating of 3 or 4 on the NFPA Hazmat diamond
 - b) Each cabinet should contain no more than a total of 120 gallons of liquids with a Fire Hazard rating of 2, 3, or 4 on the NFPA Hazmat diamond

<p><i><u>NOTE:</u></i> For example, one storage cabinet would be allowed 60 gallons of 3 or 4, AND 60 gallons of 2.</p>

- 7.5 Cabinets containing liquids may be in groups of three or less. Each group should be separated from other cabinets by at least 100 feet or fire rated construction. (NFPA 30 (2000), 4.3.2)
- 7.6 Flammable Liquids Cabinets should not be vented. Cabinets should have all bungs installed and cabinets with open vent pipes should not be used. (NFPA 30 (2000), 4.3.4)
- 7.7 Combustible packing material should be removed from items before storing in a Flammable Liquids Cabinet. (SOS 99-0286)
- 7.8 Flammable Liquids Cabinets should be locked for control by the owning department. (**CARS 200107131**)
- 7.8.1 If Flammable Liquids Cabinets are located in a locked or controlled area, then the cabinet itself is not required to be locked.
- 7.8.2 Certain cabinets that need to be accessible to all departments are not required to be locked. (i.e. cabinet that holds drum for waste paints and solvents).
- 7.8.2.1 Cabinets which are approved to not be locked are listed in Appendix 1 of this procedure.
- 7.8.3 Locking hasps may be installed on flammable liquids cabinets in accordance with **RFR 020282B** .

8 INSPECTIONS

- 8.1 General combustible inspections SHALL be conducted periodically in accordance with **PROC FPP-ZZ-00100** , Site Wide Fire Protection Inspection Procedure, to ensure that the provisions of this procedure are met. (**COMN 517**)
- 8.2 Inspections of Flammable Liquids Cabinets should be conducted monthly by the cabinet owner per **PROC APA-ZZ-00831**, Attachment 7, Non-Flammable/Flammable Chemical Storage Inspection Guidelines.

9 RECORDS

9.1 QA RECORDS

None.

9.2 COMMERCIAL RECORDS

- 9.2.1 Form CA-#712, Transient Combustible Permit (File F170.0006)

10 REFERENCES

- 10.1 **PROC APA-ZZ-00604**, Requests for Resolution
- 10.2 **PROC APA-ZZ-01010**, Radioactive Waste Management Program
- 10.3 **PROC APA-ZZ-00701**,. Control of Fire Protection Impairments
- 10.4 **PROC APA-ZZ-00742**, Control of Ignition Sources
- 10.5 **PROC FPP-ZZ-00100**, Site Wide Fire Protection Inspections
- 10.6 **PROC RTN-HC-01000**, Storage and Handling of Radwaste.
- 10.7 **PROC SDP-KC-00001**, Requirements for and Duties of Compensatory Fire Watches
- 10.8 Housekeeping and Material Condition Policy.
- 10.9 **SAFE WORK PRACTICES MANUAL (SWPM)**

- 10.10 FSAR Site Addendum, Section 9.5-1 (**COMN 511** and **COMN 513**)
- 10.11 Fire Hazards Analysis, **FSAR 9.5-1**, **FSAR APPENDIX 9.5B**
- 10.12 Fire Hazards Analysis, Callaway Site Addendum to **FSAR APPENDIX 9.5-B**
- 10.13 Fire Area Delineation Drawings, Figures 9.5-1a through d, FSAR, Section 9.5-1.
- 10.14 NFPA 30 Flammable and Combustible Liquids (**COMN 590**)
- 10.15 NFPA 51 Oxygen Fuel Gas Systems
- 10.16 NFPA 51B (1971), Cutting and Welding Processes.
- 10.17 NFPA 704, Identification of Fire Hazards Of Materials
- 10.18 NFPA 101, Life Safety Code
- 10.19 **29 CFR 1910.144** , Safety Color Code for Marking Physical Hazards
- 10.20 **29 CFR 1910.106** , Flammable and Combustible Liquids
- 10.21 **29 CFR 1910.36** , Subpart E, Means Of Egress
- 10.22 **PROC APA-ZZ-00831** , Hazardous Chemical Control Program
- 10.23 **RFR 021144A**
- 10.24 Calculation ZZ-401, Section 4.3.3.4.4
- 10.25 **CARS 200203082**

GUIDELINES FOR HANDLING FLAMMABLE AND COMBUSTIBLE LIQUIDS

Stores 1 and 2:

- Flammable liquids (Fire rating of 3 or 4 on HAZMAT diamond) should be stored in flammable liquids cabinets.
- Small quantities of flammable liquids may be stored in a freezer which maintains the temperature well below the ignition temperature of the liquid. The stock items which will be stored in this manner will be documented in the stock caution notes. This method of storage is used to significantly increase shelf life of certain materials.
- Materials stored in Stores 1 and 2 may be stored in bulk quantities and therefore it is acceptable for materials within flammable liquids cabinets to still be packaged inside of combustible material such as plastic wrapping or cardboard boxes.
- Drums of lube oil which are being processed through the QC Hold Area should be moved to the lube oil storage shed within 30 days of receipt. Extensions to this time limit should be approved by the Fire Protection Engineer and documented on a Transient Combustible Permit (CA712).
- Unprocessed materials in Stores will not yet be labled. This unprocessed material is not required to be stored within flammable liquids cabinets. This material will be received in containers which satisfy DOT requirements. Once processed, the material should be appropriately stored. **(CARS 200106920)**

Transfer of Flammable and Combustible Liquids:

1. If liquids with a Fire Hazard Rating of 3 or 4 ARE to be drawn from or transferred into vessels, containers, or portable tanks within a building they MUST be drawn:
 - a) From original shipping containers with a capacity of 5 gallons or less, or
 - b) From safety cans, or
 - c) Through a closed piping system, or
 - d) From a portable tank or container by means of a device drawing through an opening in the top of the tank or container, or
 - e) By gravity through an approved self-closing valve or self-closing faucet.

GUIDELINES FOR HANDLING FLAMMABLE AND COMBUSTIBLE LIQUIDS

2. Transferring flammable and combustible liquids by means or pressurizing the container with air is prohibited. Transferring liquids by pressure of inert gas is permitted only if controls, including pressure relief devices, are provided to limit the pressure so it cannot exceed the design pressure of the container.
3. A flammable liquid or a combustible liquid with a temperature above the flash point **MUST** not be dispensed into a metal container unless the nozzle or fill pipe is in electrical contact with the container. This can be accomplished by maintaining metallic contact during filling by a bond wire between them.
4. Bonding is not required where a container is filled through a closed system, or the container is made of non-conducting material.

FIRE HAZARD RATINGS FOR NFPA HAZMAT DIAMOND

- 4** Materials that will rapidly or completely vaporize at atmospheric pressure and normal ambient temperature or that are readily dispersed in air, and which will burn readily. This degree usually includes:

Flammable gases;
Flammable cryogenic materials;

Any liquid or gaseous material that is liquid while under pressure and has a flash point below 73° F (22.8°C) and a boiling point below 100 °F (37.8 °C) (i.e. Class IA flammable liquids);

Materials that ignite spontaneously when exposed to air.

- 3** Liquids and solids that can be ignited under almost all ambient temperature conditions. Materials in this degree produce hazardous atmospheres with air under almost all ambient temperatures or, though unaffected by ambient temperatures, are readily ignited under almost all conditions. This degree usually includes:

Liquids having a flash point below 73 °F (22.8 °C) and having a boiling point at or above 100 °F (37.8 °C) and those liquids having a flash point at or above 73 °F (22.8 °C) and below 100 °F (37.8 °C) (i.e. Class IB and Class IC flammable liquids);

Materials that on account of their physical form or environmental conditions can form explosive mixtures with air and that are readily dispersed in air, such as dusts of combustible solids and mists of flammable or combustible liquid droplets;

Materials that burn with extreme rapidity, usually by reason of self-contained oxygen (e.g., dry nitrocellulose and many organic peroxides).

- 2** Materials that must be moderately heated or exposed to relatively high ambient temperatures before ignition can occur. Materials in this degree would not under normal conditions form hazardous atmospheres with air, but under high ambient temperatures or under moderate heating may release vapor in sufficient quantities to produce hazardous atmospheres with air. This degree usually includes:

Liquids having a flash point above 100 °F (37.8 °C), but not exceeding 200 °F (93.4 °C) (i.e. Class II and Class IIIA combustible liquids);

Solid materials in the form of coarse dusts that may burn rapidly but that generally do not form explosive atmospheres with air;

Solid materials in a fibrous or shredded form that may burn rapidly and create flash fire hazards, such as cotton, sisal, and hemp;

Solids and semisolids that readily give off flammable vapors.

- 1** Materials that must be preheated before ignition can occur. Materials in this degree require considerable preheating, under all ambient temperature conditions, before ignition and combustion can occur. this degree usually includes:

Materials that will burn in air when exposed to a temperature of 1500 °F (815.5 °C) for a period of 5 minutes or less:

Liquids, solids, and semisolids having a flash point above 200 °F (93.4 °C) (i.e. Class IIIB combustible liquids);

Most ordinary combustible materials.

- 0** Materials that will not burn. This degree usually includes any material that will not burn in air when exposed to a temperature of 1500 °F (815.5 °C) for a period of 5 minutes.

NAME _____	
	FIRE HAZARD _____ CATEGORY _____ PERMIT _____ STOCK # _____

NFPA HAZMAT LABEL

TRANSIENT COMBUSTIBLE PERMIT

Permission is requested to temporarily retain the following quantities of combustible materials

In Area/Room: _____

Target Date: _____

Work Document: _____

Duration: _____

Planner / Responsible Supervisor

Date

Permission is granted under the following conditions

Fire Protection Engineer (or designee)

Date

cc: Responsible Supervisor
Fire Protection Engineer
Fire Marshal
File #F170.0006